## R marks

Claims 38-74 are pending in the application. Claims 38-49 and claims 68-74 stand rejected. Claims 50-67 are subject to a restriction/election requirement. Claims 38 and 68 are amended, new claims75-76 are added, and claims 50-67 are cancelled without prejudice. The description is amended. No new matter is added with the amendments. The examiner's rejections and objections are addressed below in substantially the same order as presented in the office action.

The description is amended to provide details for prior applications cited therein. No new matter is added.

Claim 38 is amended to require that the electrode be adapted to reduce stiction during operation.

Claim 68 is amended to require adapting the at least one electrode to reduce stiction during operation.

New claim 75 is written to an aspect of the invention wherein the one or more bumpers and the one or more electrodes are each patterned to reduce stiction during operation.

New claim 76 is written to an aspect of the invention wherein the one or more bumpers are patterned as circles or ridges to reduce stiction during operation.

**Claim Renumbering and Restriction**

Applicant affirms that the claims of Group 1 are elected without traverse and affirms the claim renumbering.

**Objection to the Specification**

The examiner notes updates necessary in the specification. The present amendment provides the updates.

**Claim Rejections Und r 35 U.S.C. § 102**

Claims 38-49 and claims 68-74 are rejected under 35 U.S.C. § 102(b) as being anticipated by Henrion et al. (U.S. Patent 5,652,384). Applicant respectfully requests reconsideration in view of the amendments and the following remarks.

The claimed invention is directed to apparatus and methods for reducing a phenomenon known as stiction that occurs in micro electro-mechanical systems (MEMS), such as MEMS accelerometers. The disclosure notes the fact recognizes that stiction occurs when a top cap overshock bumpers stick to metal electrodes the operation of the accelerometer. The stiction between the top cap overshock bumpers and the metal electrodes located on the top measurement mass half may be caused by any number of sources, such as, for example, imprinting of the top cap overshock bumpers onto the metal electrode located on the top measurement mass half, Van Der Waals forces, electrostatic forces, surface residues resulting from the fabrication of the accelerometer, or package-induced stresses. See the disclosure at page 15, line 26 through page 16, line 4.

The claimed invention reduces stiction in such sensors having both overshock bumpers and electrodes by patterning an electrode when used with a known overshock bumper, by patterning the overshock bumpers in a shape so as to reduce stiction further than does a known bumper when using a standard electrode, or by patterning both the bumper and the electrode.

Amended claim 38 is to an apparatus having a plurality of bumpers and an electrode adapted to reduce stiction. Amended claim 68 is to a method for protecting a sensor during operation that includes adapting an electrode to reduce stiction.

New claim 75 is to an apparatus having one or more bumpers and one or more electrodes, wherein both the bumpers and electrodes are patterned to reduce stiction.

New claim 76 is to a detector, wherein one or more bumpers are patterned as circles or ridges to reduce stiction during operation of the detector.

Henrion teaches the use of travel stops that reduce latchup and that serve to limit movement of a measurement mass when large vertical shock forces are exerted against the mass. The reference, however, teaches only the concept of separation of the mass 16 and the end frame 18. There is no recognition in the disclosure of stiction caused by the travel stops 45 contacting the electrodes. Consequently, there is no teaching or suggestion of reducing stiction using an electrode adapted to reduce stiction as claimed in amended claims 38 and 68, or by

patterning both the electrodes and the bumpers as claimed in claim 75, or by using one or more bumpers patterned in any particular way as claimed in claim 76. Therefore, applicant submits that all independent claims are novel with respect to Henrion. Furthermore, applicant submits that the independent claims are not obvious in view of any combination of art of record due at least in part by the lack of recognition of stiction caused by interaction between bumpers and electrodes.

Applicant neither explicitly nor implicitly acquiesces that the dependent claims stand or fall with the independent claims. The art of record does not teach the structural limitations of all dependent claims. In particular, the applicant finds no teaching or suggestion of the limitations found in dependent claims 45-49, or in claims 70-74. The claimed shapes and structures are not taught. Consequently, applicant reserves the right to argue the allowability and/or patentability of the dependent claims.

**Conclusion**

For all the foregoing reasons, applicant respectfully submits that the application is in a condition for allowance. A check in the amount of $86.00 is submitted herewith in payment of the fee associated with the additional independent claims. The Commissioner is authorized to charge any additional fee required for this paper, or credit any overpayment to the **Deposit Account No. Deposit Account 13-0010 (IO-1012US)**.

Respectfully submitted,

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